



## Case review

## Homicide in Brescia County (Northern Italy): A thirty-year review



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## ABSTRACT

This retrospective study analyses post-mortem examination data of 251 homicide victims recorded by the Brescia Institute of Forensic Medicine between the years 1982 and 2012. The following variables were considered: year, month and day of death; gender, age and nationality of the victim; type of injurious mean; cause of death; homicide-suicides events; multiple murders; scene of death; toxicological data. Victims were usually young (30% was in the 21–30 years class) and males (64%). Although the victims were mostly Italians (73%), from 1990's more and more foreign victims appeared, following the migratory flow that affected Brescia County. The offenders frequently used firearms to kill their victims (41%), in particular for multiple murders. Sharp instruments were used mostly by foreigners. The study also emphasized 20 homicide-suicide events, mostly committed between intimates and family members.

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## 1. Introduction

Since ancient times homicide represents the prototype of the illegal act addressed to the annihilation of the most precious human gift: the life. The word homicide (from the Latin *homo*-man and *cidium*-killing) means a person's death caused by another human being. In most countries homicide is a crime if it comes from an unlawful action.

This study was conducted by the Institute of Forensic Medicine in the County of Brescia, an important industrial district in Northern Italy (Lombard region), with a population of more than 1,250,000 (12.8% of Lombard region population; 2.2% of Italian population).<sup>1</sup>

The latest report on the homicide rate in the European countries showed that the number of victims by homicide in Italy is not so high as the media usually emphasized: the risk is much higher in Eastern Europe countries (such as Estonia, Latvia, Lithuania, Bulgaria, Hungary, Croatia, Romania, Slovakia), but also in some countries of Northern Europe, in particular Finland, Sweden and Denmark.<sup>2,3</sup> All around the world, the homicide rate is frighteningly high in Colombia, South Africa, Brazil and Sri Lanka.<sup>4–8</sup>

## 2. Materials and methods

This retrospective study analysed the post-mortem examinations reported by the Brescia Institute of Forensic Medicine from June 1, 1982 to June 31, 2012. During the 30-year period, a total of 11,111 post-mortem investigations were performed; among these, 251 were homicide (2% of all exams).

In each case, the following parameters were considered:

1. Day, month and year of death;
2. Gender, age and nationality of victims;
3. Injurious means;
4. Cause of death;
5. Crime scene information;
6. Homicide-suicide events;
7. Multiple murders;
8. Toxicological exam outcomes (whenever mandated by the Law).

## 3. Results

## 3.1. Demographic data

Over the period between 1982 and 2012, 251 cases of homicide occurred in the County of Brescia, corresponding to an average homicide rate of 0.7 per 100,000 people per year. Although there is a natural year to year variation, the phenomenon seems to grow a

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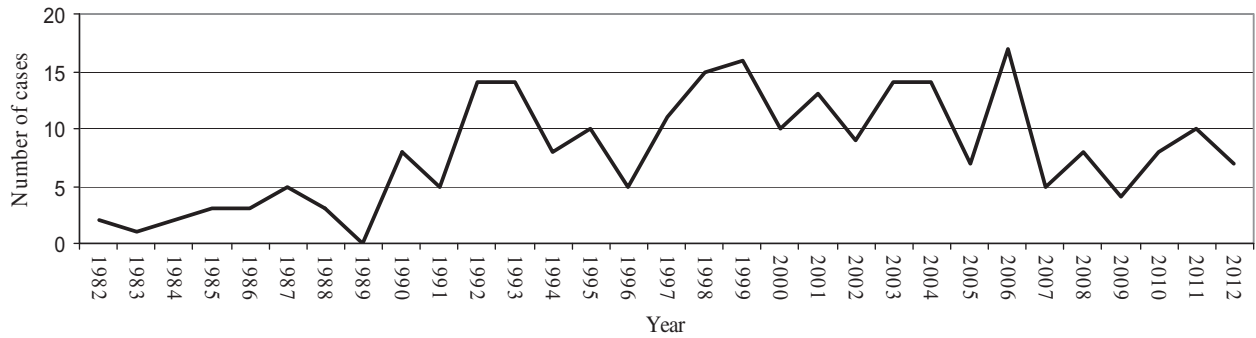


Fig. 1. Homicide distribution in the County of Brescia (Northern Italy), 1982–2012.

little compared to the first decade (32 victims recorded from 1982 to 1991, 116 from 1992 to 2001 and 104 in the last decade) (Fig. 1). Both males and females were interested (Fig. 2).

Most homicides were observed in summer and in autumn, especially in October (27 cases). The daily distribution was equally shared during the week, with a little prevalence on Sunday (51 cases).

### 3.2. Gender and age of victims

Of the 251 victims, 160 (64%) were males. Victims were generally young, both males and females showing the higher percentage

between 21 and 30 years, with a male prevalence under the 50 years (69%) and a female prevalence over the 50 years (55%) (Fig. 3). The average age of the victims was 36.4 years for males (range, 1–80) and 41.5 for females (range, 1–91).

### 3.3. Nationality

Foreign victims first appeared in 1992 and their number has been increasing constantly, following the migratory flow that involved the County of Brescia in the last decades and that allowed to reach the highest incidence of foreigners in Italy nowadays (16.4%) (Fig. 4).<sup>1</sup>

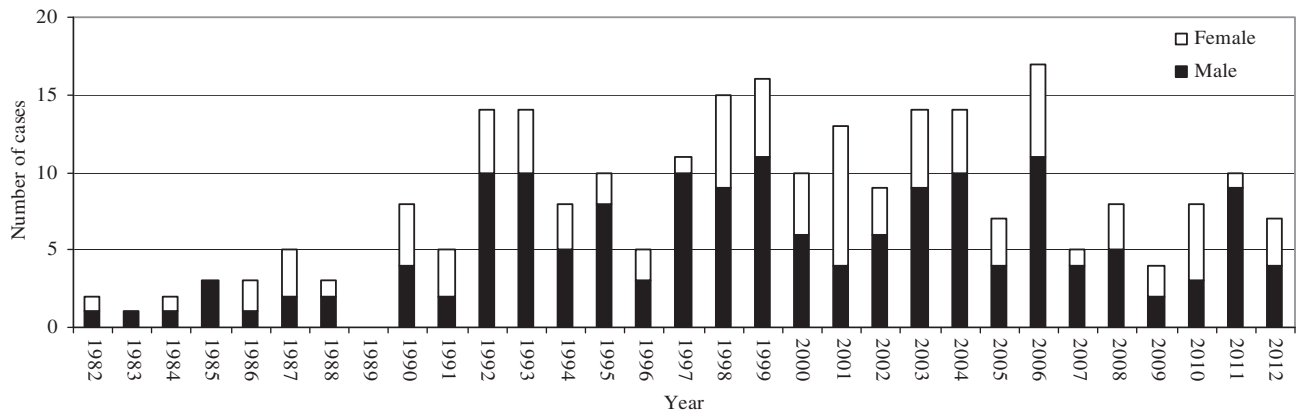


Fig. 2. Temporal distribution by sex.

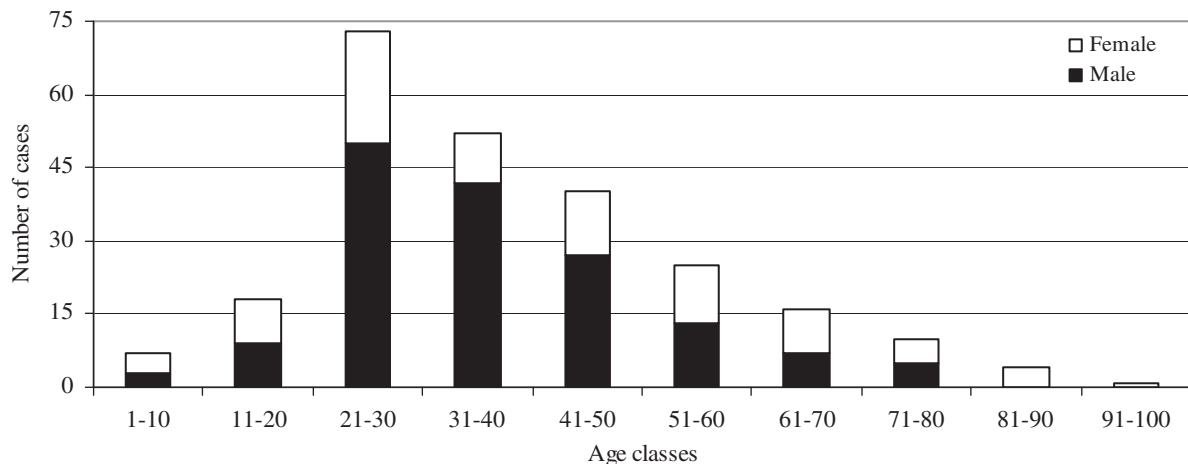


Fig. 3. Distribution of victims by age and sex.

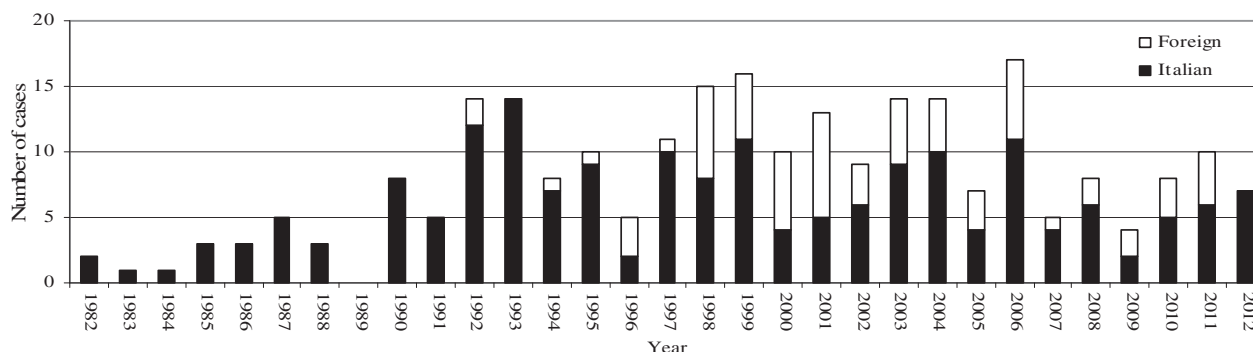


Fig. 4. Temporal distribution and nationality.

### 3.4. Injurious means

In this 30-year period perpetrators used mainly firearms (104 cases, 41.4%) and sharp instruments (82 cases, 32.7%), followed by asphyxial means (30 cases, 11.9%) and blunt instruments (22 cases, 8.7%) (Table 1).

#### 3.4.1. Firearm

Firearm was the injurious mean the most frequently used (104 cases, 41.4%), above all in the nineties, and especially in 1993 and 1999 (10 cases each year).

Among firearms, single-action weapons were more likely to be used (79%) than multiple-action ones (19%). In 1 case the victim was killed by both single and multiple-action weapons while in 1 case by an instrument for stunning cattle. In most of the cases of multiple-action weapons (65%) victims were killed by a single shoot, while in cases of single-action weapons 51% of victims were reached by more than a single shoot.

The anatomical regions more involved in these deaths were head (36.5%) and chest (25%) (Table 2).

#### 3.4.2. Sharp instruments

The second most frequent cause of death was due to sharp force injuries (82 cases, 32.7%) that had a significant increase in the last decade. The offender often used a blade sharp instrument (92.7%) like a knife; other identified means were glass fragments, a cleaver and an axe. The predominant site of the fatal injury was the chest (47.5%); in this group of victims the main cause of death resulted from a conspicuous loss of blood secondary to thoracic vascular lesions (Table 2). Other fatal injuries interested the neck vessels (14.6%) and the thoracic area in association with the abdomen (12.2%) or the neck (8.5%). In few cases (7.3%) victims died for femoral artery lesions.

Table 1  
Injurious means.

	Males victims (n = 160) n (%)	Female victims (n = 91) n (%)	Total (n = 251) n (%)
Firearm	78 (48.8)	26 (28.6)	104 (41.4)
Sharp instruments	56 (35.0)	26 (28.6)	82 (32.7)
Asphyxial means	5 (3.1)	25 (27.5)	30 (12.0)
Blunt instruments	13 (8.1)	9 (9.9)	22 (8.8)
Combination <sup>a</sup>	6 (3.7)	4 (4.4)	10 (4.0)
Uncommon (burning, running over)	1 (0.6)	1 (1.1)	2 (0.8)
Unknown	1 (0.6)	—	1 (0.4)

<sup>a</sup> Combination of two injurious means (firearm and sharp instruments; asphyxial means and blunt instruments; blunt instruments and a fall).

#### 3.4.3. Asphyxiation

Asphyxiation deaths accounted for 11.9% (30 cases): 30% (9 cases) manual strangulation, 27% (8 cases) a combination of both ligature and manual strangulation, 23% (7 cases) ligature strangulation, 10% (3 cases) a combination of both strangulation and plastic bag suffocation. In 1 case the victim, an old woman, was suffocated with a pillow; in another case a young woman was hanged; there was also a 3 years old boy drowned by his mother (Fig. 5). 83% (25 cases) of victims were female (female/male ratio 5:1).

#### 3.4.4. Blunt trauma

Blunt instruments were involved in 22 cases (8.8%). Most commonly, in 13 cases (59%), the perpetrator used an object with a small surface (hammer, glass ashtray, wooden stick, baseball bat, iron pipe), in 6 cases (27%) the death was due to a violent fall to the ground, while in the 3 remaining cases (13.6%) victims were killed by different means including kicks and punches.

In almost all cases (90%), death was due to head injury (Table 2); among these, there was also a case of “shaken baby syndrome” involving a 5 months old baby. In one case only (5%) the victim died for chest injuries (multiple rib fractures with laceration of thoracic vessels) and in another case (5%) for hemorrhagic shock secondary to spleen rupture in a subject affected by splenomegaly.

#### 3.4.5. Combination of injurious means

In 10 cases (4%) a combination of two different injurious means was involved: in 5 cases firearm and sharp instruments, in 3 cases asphyxial means and blunt instruments, while in 2 cases the victim was repeatedly hit by blunt objects and then threw down.

#### 3.4.6. Uncommon and unknown injurious means

In one case the perpetrator ran over his victim, while in another case the victim was burned. In one case it wasn't possible to

Table 2  
Anatomical area of fatal injury.

	Firearm (n)	Sharpe forces (n)	Blunt forces (n)
Head	38	2	20
Head-neck	3	—	—
Head-chest	6	—	—
Head-abdomen	2	—	—
Neck	3	12	—
Neck-chest	1	7	—
Chest	26	39	1
Chest-abdomen	15	10	—
Abdomen	8	6	1
Inferior limbs	1	4	—
Unknown	1	2	—

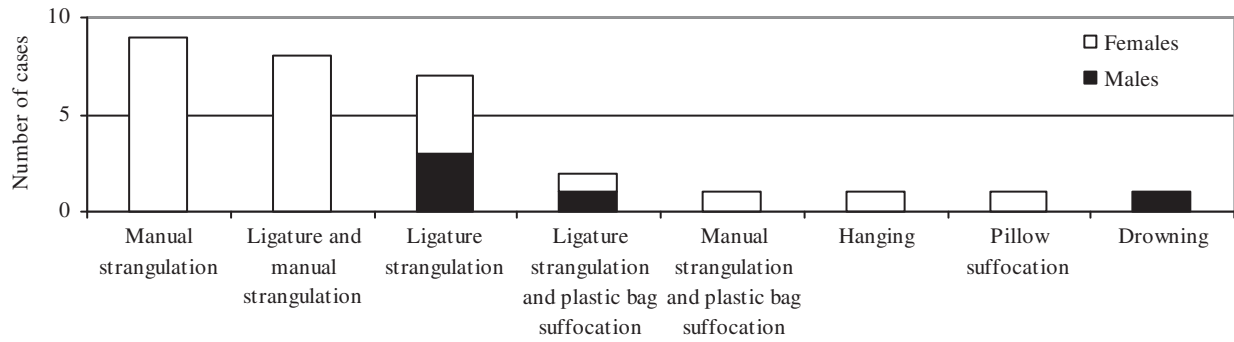


Fig. 5. Asphyxial means.

identify the injurious mean because of the victim's highly decomposed state.

### 3.5. Scene of death

The scene of death was reported in 161 cases out of 251 (64%). Of these, half of homicides were committed in a private house (51%), following open-air places (31%), public buildings (9%) and cars (8%); one case only took place in a penitentiary (Fig. 6). In homicides committed at home, 60% of victims was female, while in homicides committed in open-air places 76% of victims was male.

### 3.6. Homicide-suicide events

20 homicide-suicide events were found (7.9% of our series). All the victims were females (100%). All the cases were characterized by an intimate relationship between victim and perpetrator: in 8 cases the offender was the husband, in 7 cases the boyfriend, in 2 cases the father and in one case the former boyfriend. In 60% of the cases the homicide occurred in a private home and was carried out with a firearm (65%). Only one of these events involved multiple victims: a father who strangled his wife and child.

### 3.7. Multiple murders

During the considered period, there were 11 multiple murders: 7 cases with 2 victims, 2 cases with 3 victims and 2 cases with 4 victims.

### 3.8. Toxicological findings

Strictly according to Italian law, in 80 of the cases at hand (31.8%) toxicological screenings were conducted pursuant to an order by the District Attorney's Office. Substances were detected in 48 cases (60%). Alcohol was detected either alone (29 cases) or combined with cocaine or ecstasy (6 cases), with a value ranging from 0.02 to 2.67 g/L. Illicit drugs were found in 23.7% (19 cases); cocaine was

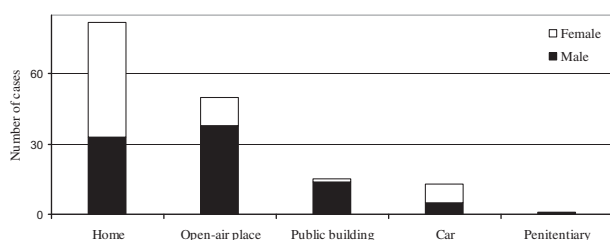


Fig. 6. Scene of death.

the most detected drug (11 cases), followed by cannabis (5 cases) and amphetamines (2 cases) (Table 3).

## 4. Discussion

The County of Brescia is one of the most industrialized Italian urban counties, suffering of economic crisis periods more than other counties. A previous Italian study underlined that homicide rate increases with economic crisis, unemployment rising and financial difficulties.<sup>9</sup>

Another problem in the County of Brescia is social integration: nowadays Brescia is the Italian County with the highest incidence of foreigners (166.1 per 1000 inhabitant).<sup>1</sup> The migratory flow affecting the County from '90s was reflected also in the nationality of the victims in our study: the first foreign victim appeared in 1992 and in the following years foreigners were more and more represented, reaching 27% of all homicide deaths.

The general pattern of homicides involved a young Italian male killed by a firearm. Considering the gender, male had a higher risk of death by homicide than female (male/female ratio 1.7:1). Male prevalence is pointed up in many studies all over the world, probably connected to the greater presence of the man in the social life and in the organized crime but it could also be linked to the different biological nature that characterizes the gender: it is well known that high levels of testosterone are associated with a more aggressive behaviour.<sup>4,10–20</sup>

As in other reports, victims are young adults, that is subjects more frequently involved in violent crime.<sup>4,6,10–12,15,18–20</sup> In fact, the pick age range for homicide victims is 21–30 years, both for males and females (Fig. 3).

Firearm-related injuries were the first cause of death over the 30 year period, followed by sharp trauma, asphyxia and blunt trauma. Similar results were found in other Italian Forensic Departments,<sup>21–23</sup> in the Western suburbs of Paris<sup>13</sup> and in the West of France (Tours),<sup>24</sup> while in other countries and cities, such as the Republic of Ireland,<sup>12</sup> Turku<sup>10</sup> (Finland), northern Norway,<sup>14</sup> Oslo

**Table 3**  
Toxicological findings.

	Male victims (n = 57)	Female victims (n = 23)	Total (n = 80)
Negative	18	14	32
Positive	39	9	48
Alcohol	26	3	29
Alcohol + Cocaine	5	–	5
Alcohol + Ecstasy	1	–	1
Cocaine	4	2	6
Cannabis	2	3	5
Amphetamines	1	1	2

**Table 4**  
Comparison with other countries.

Country	Period	Victim %		Victim age (main)	Injurious means % (n)			
		Male	Female		Firearm	Sharp forces	Asphyxia	Blunt forces
Present study	1982–2012	64	36	21–30	41.4 (104)	32.7 (82)	12 (30)	8.8 (22)
Italy, Bologna <sup>21</sup>	1980–2000	61.7	38.3	21–30	52.7 (88)	(51)	7.2 (12)	9.6 (16)
Italy, Rome <sup>22</sup>	1985–1997	–	–	–	48.9 (240)	27.9 (137)	8.7 (43)	10 (49)
Italy, Terni <sup>23</sup>	1984–2009	60.87	39.13	51–60	39.13 (9)	34.78 (8)	4.35 (1)	–
France, Paris <sup>13</sup>	1994–2008	60	40	–	37 (188)	27 (137)	13 (68)	19 (95)
France, Tours <sup>24</sup>	2000–2003	71	29	50–59	40 (25)	16 (10)	6 (5)	36 (23)
Ireland <sup>12</sup>	2004–2008	80	20	20–29	28	36	8.69	18
Finland, Turku <sup>10</sup>	1983–2002	73	27	31–40	(27)	(64)	(33)	(48)
Norway, Oslo <sup>11</sup>	1985–1994	60	40	30–39	21.1	26.9	20.5	16
Denmark, Copenhagen <sup>11</sup>	1985–1994	52	48	30–39	18.2	36	22.9	22.9
Senegal, Dakar <sup>15</sup>	1997–2007	86.6	13.4	21–25	6.8 (44)	55 (318)	–	29.3 (169)
South Africa, Pretoria <sup>4</sup>	2007–2008	87	13	21–30	42.6	20.1	25.1	2.5
Australia, Victoria <sup>25</sup>	1990–1992	–	–	–	21	35	8	32
Australia <sup>17</sup>	1969–2008	–	–	–	10	47	2	31
Colombia, Medellín <sup>5</sup>	1980–2007	92.8	7.2	20–29	81.3	10.7	–	–
Colombia, Medellín <sup>4</sup>	1979–2008	92.8	7.2	20–24	84.7	–	–	–
Brazil, São Paulo <sup>7</sup>	1993–1997	93.6	6.4	15–30	74.7	–	–	–
Sri Lanka <sup>8</sup>	2005–2006	94	6	20–40	31	14	–	23
India, Manipal <sup>19</sup>	1993–2003	78.7	21.3	21–30	4.9	37.7	4.9	29.5
South India, Mangalore <sup>20</sup>	2001–2005	79.8	20.2	21–30	2.3 (2)	49.4 (44)	(8)	34.8 (31)
Malaysia, Kuala Lumpur <sup>18</sup>	1999–2003	89.4	10.6	20–39	14.3	41	–	20.3

(Norway) and Copenhagen (Denmark)<sup>11</sup> and London,<sup>16</sup> the majority of homicides involved sharp and blunt instruments (Table 4).

The different injurious mean for homicide also relies on weapons availability: in Australia,<sup>17,25</sup> Senegal,<sup>15</sup> Malaysia<sup>18</sup> and India,<sup>19,20</sup> where there are strict laws on firearm ownership, firearm deaths are uncommon, while in the United States,<sup>26</sup> South Africa,<sup>6</sup> Colombia<sup>4,5</sup> and Brazil<sup>7</sup> many homicides involve firearms.

Considering the injurious mean and the nationality, Italians were killed by firearms in about half of cases and by sharp instruments in about one quart of cases; foreign victims were mostly killed by sharp instruments.

This difference can reflect the difficulties for foreigners to get weapons, but another explanation is traced down in the different culture: a lot of immigrants consider the knife a symbol of prestige and authority, they often bring it with them and consequently it could be a risk factor for a possible crime.

Separating male and female victims, firearms and sharp instruments were the two most common injurious means of killing in male (respectively 48% and 35%), followed by blunt instruments (8%); instead, for females there were three main causes of death: firearms (29%), sharp instruments (29%) and asphyxial means (27%). Among asphyxia victims there was an high female prevalence, in agreement with other studies.<sup>11,13,14,17,20</sup>

Analysing the different body region, lethal wounds frequently involved the chest (70 cases, 28%) and the head (62 cases, 25%), anatomical regions well known to everybody for their vital importance. As underlined in other reports, sharp force injuries commonly interested the thoracic area, while blunt force injuries mostly affected the head.<sup>10,16,26–28</sup>

As in other studies, the private home was the favourite location for the homicide.<sup>4,10–13</sup> This result was strongly close to the relationship between the offender and the victim that mostly frequented the same family background and the same environment; different studies revealed that in the majority of the cases the perpetrator and the victim are known to each other.<sup>11–13,25</sup>

Although toxicological testing were performed in a minority of cases (31.8%), because the Italian law allows such exam only under the District Attorney's Office's order, according to other studies,<sup>29</sup> psychoactive substances were present in the majority of the cases (60% of the tested cases); alcohol, alone or with other illicit substances, was detected in 73% of the tested cases.

The homicide-suicide events, that is crimes where the offender killed the victim and later committed suicide, represented 7.9% (20 cases) of all the homicides. As appeared in other studies, this kind of homicide is quite uncommon and in the majority of the cases it happens among intimates.<sup>13,30–36</sup>

## 5. Conclusions

In the examined period (1982–2012) in the County of Brescia (Northern Italy) there was a persistent low homicide rate, an increase in homicides amongst non-Italians in the region (due to the relevant migratory flow that interested the County, above all from Maghreb countries), with a predominance of gunshot shootings.

The homicide events can reflect the social changes and the different problems (family, economy, employment, contrast among different cultures, stressful living style) that became deep-rooted in the community and, day by day, could undermine the individual and social equilibrium until ending in a possible violent behaviour.

### Ethical approval

None declared.

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### Conflict of interest

None.

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